PentaMedia
DIGITAL MEDIA SOLUTION

Real Time MPEG-I/II Encoder

NAVIS

User's Guide

NAVIS

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Warranty

This PentaMedia product is warranted for the period of one year from the original date of purchase, against defective materials and workmanship. In the event that warranty service is required, customer should return the product to PentaMedia, authorized resellers or authorized service center.

Warranty Conditions

1. The warranty is valid only if, when warranty service is required, the warranty card is fully and properly completed and is presented with the original invoice or sales slip or confirmation, and the serial number on the product has not been defaced.

2. PentaMedia's warranty is limited to the reconditioning or, at its discretion, replacement or the product or the defective part.

3. Warranty reconditioning must be carried out by authorized parties of Pentamedia. No re-imbursement will be made for repairs carried out by non authorized parties of PentaMedia and, any such repair work and damage to the products caused by such repair work will not be covered by the warranty.

4. This product is not considered to be defective in materials nor workman shop by reason that it requires adaptation in order to conform to national or local technical or safety standards in force in any country other than the one for which the product was originally designed and manufactured. The warranty will not cover, and no re-imbursement will be made for such adaptation nor any damage which may result.

5. The warranty covers none of the followings:

   a) Periodic check ups, maintenance and repair or replacement of parts due to normal wear and tear.

   b) Cost relating to transport, removal or installation of the product.

   c) Misuse, including the failure to use this product for its normal purposes or incorrect installation.

d) Damage caused by Lightning, Water, Fire, Acts of God, War, Public Disturbances, incorrect main voltage or any other cause beyond the control of PentaMedia.

6. The warranty is valid for any person who legally acquired possession of the product during the warranty period.

7. During the applicable warranty period, the product returned to us or authorized parties by PentaMedia must be preauthorized by us with a return material authorization No. Marked on the outside of package. Replacement or reconditioning for the product may be obtained by delivering the defective product accompanied by a copy of the dated proof of purchase, sent prepaid, insured, and packaged appropriately.

* Any part of this user's guide can be deleted or modified by the discretion of manufacturer without prior notice to any users.

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Preface

Thank you for your choosing NAVIS Real-time MPEG-1/2 PC card.

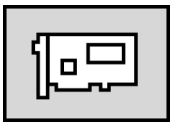
NAVIS is an MPEG-1/2 encoding solution priced reasonably for consumers.

NAVIS integrates MPEG-1/2 audio and video encoder perfectly with one board. The users can make highly qualified video clips and video titles.

NAVIS compresses video up to 8 Mbps with various stream types such as real-time variable bit rate encoding.

NAVIS revives the encoded files with WinDVD program of S/W DVD Player that is provided as a bundle. With VideoStudio, which is an MPEG2 editing tool, the user can make his/her own file adding his/her own caption, sound and special effect to the encoded file.

We are sure that the users will be satisfied with NAVIS that is easily installed, easy to use while supporting complete Plug&Play.



Chapter 1

Introduction

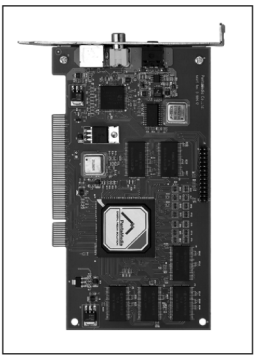
Features

- **PC Bus TYPE :** PCI Type
- **Video Input :** 1 Composite, 1 S-VHS
- **Video Input Type :** NTSC, PAL, CCIR-656
- **Audio Input :** Analog stereo line input
- **CBR** (Constant Bit Rate), **VBR** (Variable Bit Rate)
- **High quality time GOP structure :** I, B, P Frames
- **Frames :** 30 Frames/sec
- **Video Output stream**
  . Bitrate : 1 ~ 8 Mbps (MPEG2), 500 Kbps ~ 2 Mbps (MPEG 1)
  . File Type : MPEG1, MPEG2 Program Stream
- **Audio Output stream Bit rate :** 192 Kbps, 224 Kbps, 384 Kbps
  . Sampling Rate : 44.1 KHz
  . File Type : MPEG1 layer2
- **Resolution**
  . MPEG1 : 352 x 240 (NTSC), 352 x 288 (PAL)
  . MPEG2
  NTSC : 720 x 480, 640 x 480, 480 x 480, 352 x 480
  PAL : 720 x 576, 640 x 576, 480 x 576, 352 x 576
- **Environment**
  . Operation Temperature : 0 ~ 60 C
  . storing temperature : - 55 ~ 85 C
  . Humidity : 10 % ~ 90 %
- **Board Size**
  . 170 x 95 mm

Contents in package

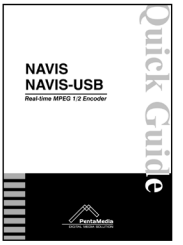
1. Parts

1. NAVIS Board
2. Video/Audio cables
3. Quick Install Guide
4. Program Install CD

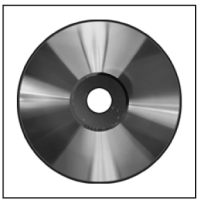


1. NAVIS board

2. Video/Audio cable



3. Quick Install Guide



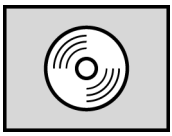
4. NAVIS Install Program CD

Figure 1 - Product Package

Recommended system specification

1. Recommended system

- CPU : Pentium 250 MHz over
- Memory : Minimum 64 MB over
- Hard disk : Minimum 200 MB over
- Video card : Video card that supports DirectDraw
- OS : Microsoft Windows 98, Windows 2000, Windows ME



Chapter 2

Installation

Board layout

1. NAVIS Board

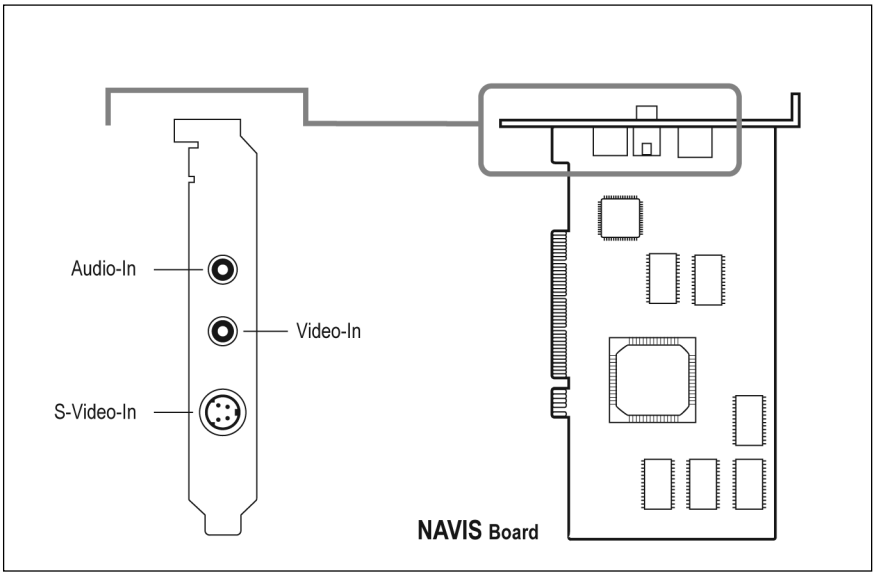


Figure 2 - Board structure

2. Video/Audio Cables

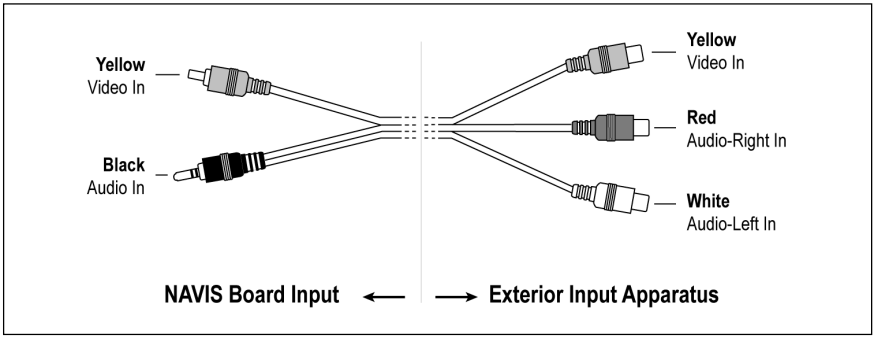


Figure 3 - Cables

Board Installation

1. Turn off PC.
2. Open the cover of computer and insert NAVIS board into empty PCI slot. Connect the respective video and audio sources that are to be recorded to NAVIS board.

Composite connection

If you want to use video-input jack as composite connector, connect the video source jack of devices (ex. VTR, TV or Camcorder) that are to be recorded to **Video IN** terminal of NAVIS. And connect Audio source jack to **Audio In** connector of NAVIS as shown in the following picture.

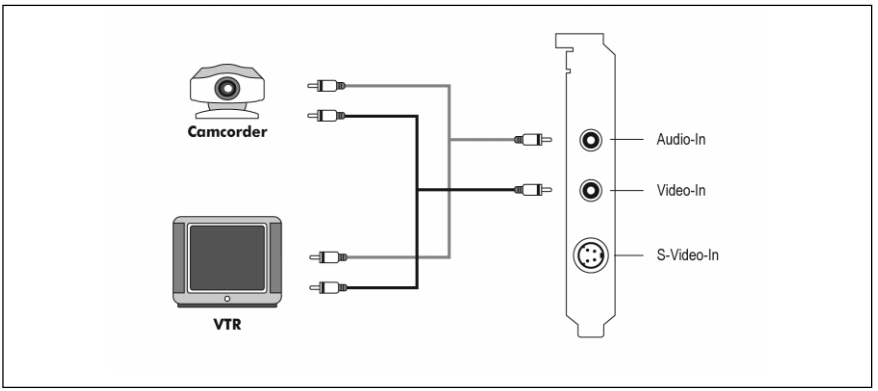


Figure 4 - Composite connection

S-Video connection

In case there is S-Video source in a device that is to be recorded, connect **S-Video IN** connector of NAVIS to the device. Connect Audio source jack to **Audio In** connector of NAVIS as shown in the following picture.

(* **S-Video** source is not existent in normal devices but in high quality devices. It displays higher resolution of video than general composite. If there is **S-Video** source in a device, use this source to get better resolution.)

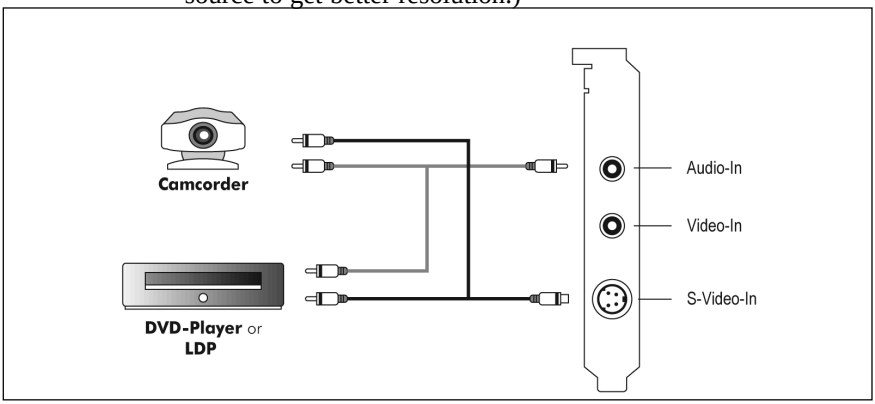


Figure 5 - S-Video connection

3. After finishing the process of 2, turn on PC and booting Windows.

4. Windows tries to detect new hardware. If it demands software driver for PCI Multimedia Video Device, click next button.

Add New Hardware Wizard
This wizard searches for new drivers for:
PCI Multimedia Video Device
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

5. Insert CD following the instruction. Click next button.

Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
C:\
Browse...
< Back
Next >
Cancel

6. When Windows detects NAVIS MPEG2 Encoder as shown in the following picture, click next button.

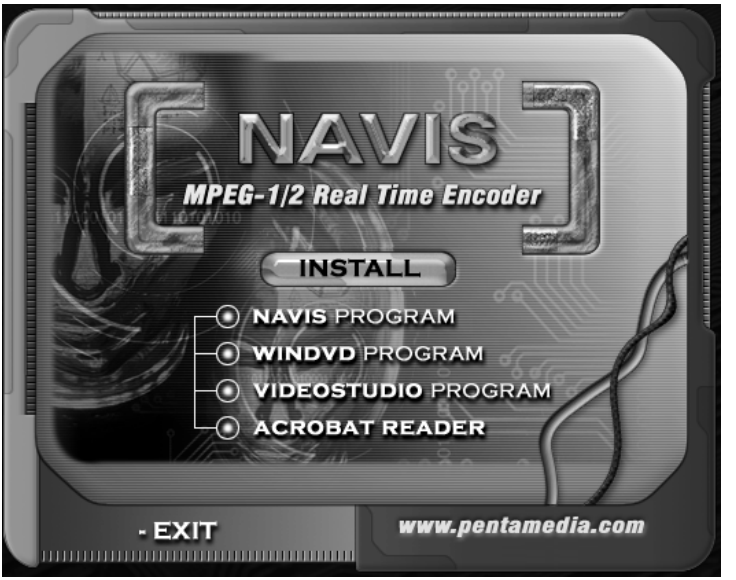
Add New Hardware Wizard
Windows driver file search for the device:
NAVIS MPEG2 Encoder (WDM)
Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.
Location of driver:
E:\PROGRAM\RELEASE\NAVIS_V1.5\DRIV
< Back
Next >
Cancel

7. Windows starts to install driver for NAVIS. If it demands Windows CD, insert Windows CD into CD driver and complete the installation.

Add New Hardware Wizard
NAVIS MPEG2 Encoder (WDM)
Windows has finished installing the software that your new hardware device requires.
< Back
Finish
Cancel

Program Installation

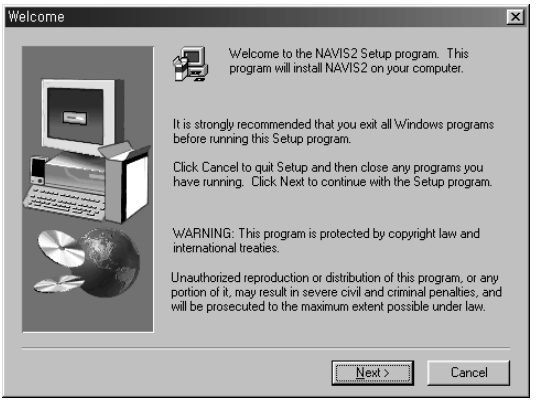
1. If NAVIS driver program is installed, respective program should be installed. Insert CD that contains respective program into a CD drive. (If CD is already inserted in the CD drive, follow the instruction of 2.)
2. Execute Setup.exe at respective driver. Then the following picture appears.



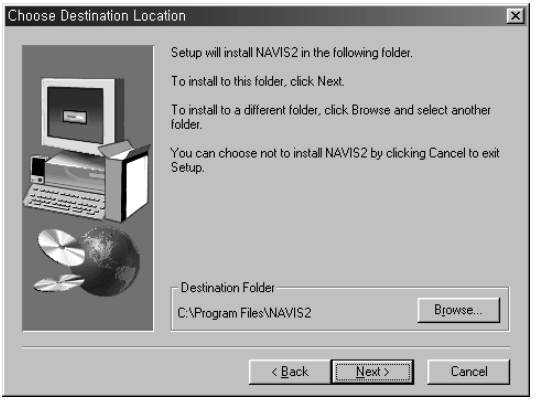
NAVIS Program Installation

1. Click the following image to install NAVIS program.

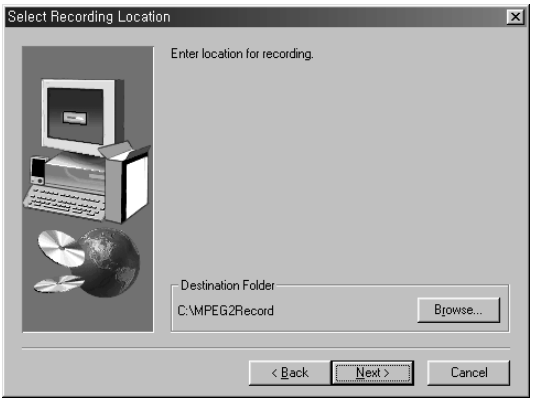
2. Then NAVIS program starts to be installed. Click <Next> button.


Welcome
Welcome to the NAVIS2 Setup program. This program will install NAVIS2 on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

3. To install to this folder, click <Next>. If you want to install to a different folder, click <Browse>

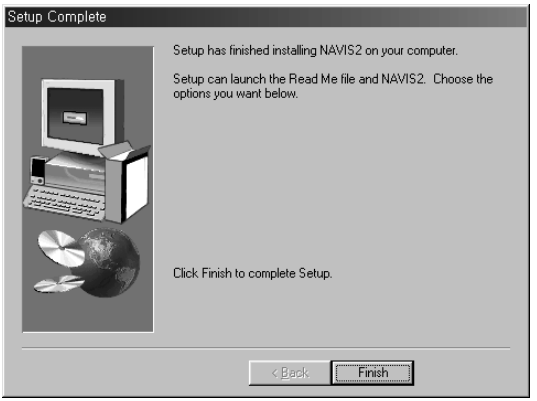

Choose Destination Location
Setup will install NAVIS2 in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install NAVIS2 by clicking Cancel to exit Setup.
Destination Folder
C:\Program Files\NAVIS2
Browse...
< Back
Next >
Cancel

4. To record to this folder, click <Next>. If you want to record to different folder, click <Browse>.



5. Now preparation for program installation is completed. And the computer starts to copy all necessary programs to hard disk drive.

6. Click <OK>.


Setup Complete
Setup has finished installing NAVIS2 on your computer.
Setup can launch the Read Me file and NAVIS2. Choose the options you want below.
Click Finish to complete Setup.
< Back
Finish

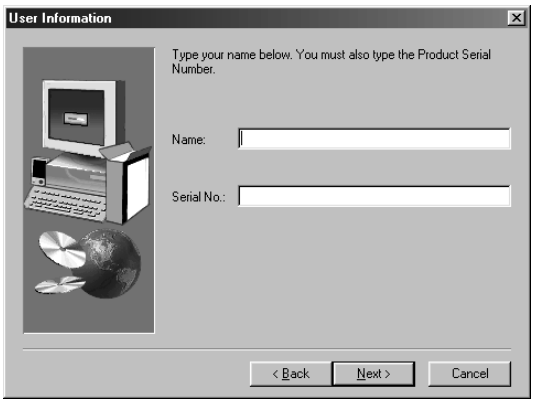
WinDVD Program Installation

1.Click the following image to install WinDVD program.

Then WinDVD program starts to be installed.

WinDVD program performs MPEG2 Decoding and DVD playing. It is highly recommended to install the program, as it is needed to play the file that is encoded at NAVIS board.

2.When the program starts to be installed, welcoming message and software usage agreement will appear. Continue to input necessary information and input serial No that is indicated as IVI WinDVD on the case of installation CD.



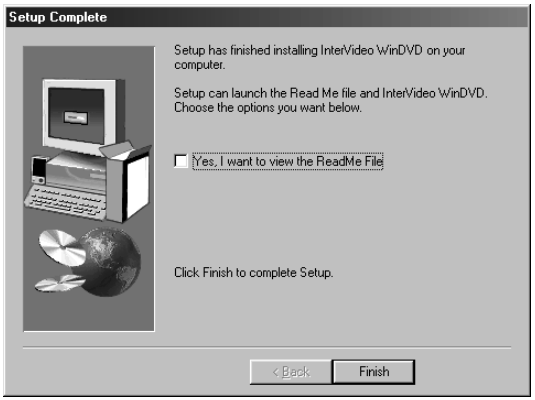
3. Select a folder in which the program is to be installed at the **next** menu. You can choose the other folder by clicking **Search** button.

4. You can select among typical, minimum and customizing installations. (We recommend you choose typical installation.)

Setup Type
Click the type of Setup you prefer, then click Next.
Typical
Program will be installed with the most common options. Recommended for most users.
Compact
Program will be installed with minimum required options.
Custom
You may choose the options you want to install. Recommended for advanced users.
< Back
Next >
Cancel

5. After selecting program folder, all necessary information for installation is completed. The computer starts to copy all necessary programs to hard disk drive.

6. If programs are copied, the following installation completion window appears. Then the installation is completed.


Setup Complete
Setup has finished installing InterVideo WinDVD on your computer.
Setup can launch the Read Me file and InterVideo WinDVD. Choose the options you want below.
Yes, I want to view the ReadMe File
Click Finish to complete Setup.
< Back
Finish

VideoStudio Program Installation

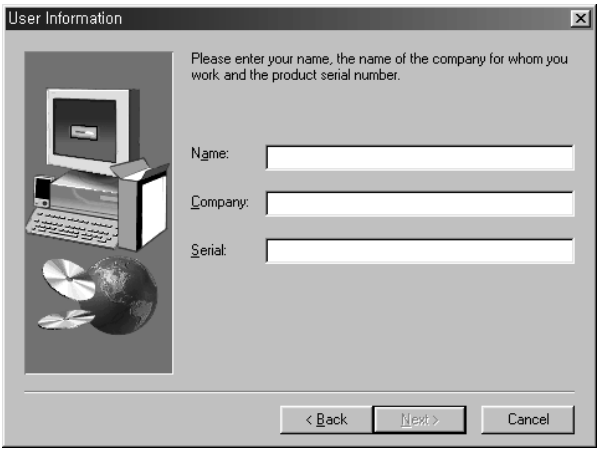
1. Click the following image to install VideoStudio program.

Then VideoStudio program starts to be installed.

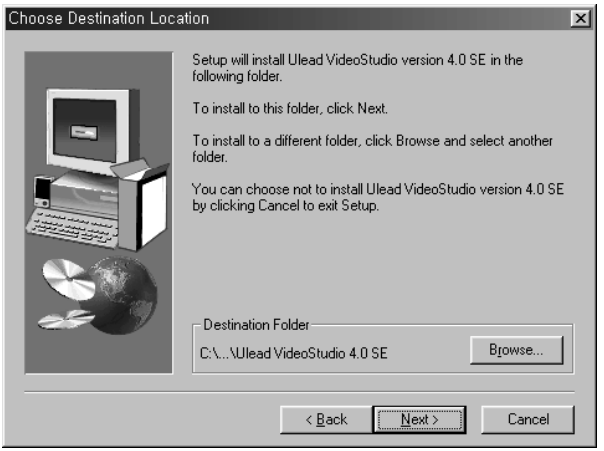
VideoStudio program is able to edit a file that is encoded by NAVIS. It can add caption, sound and special effect to MPEG1/2 File to make his/her own file.

Ulead
VERSION 4.0
VIDEOSTUDIO SE
Copyright (c) 1992~1999
Ulead Systems, Inc.
Ulead Systems
Ce programme est protégé par les lois américaines et les lois internationales concernant le copyright, ainsi que cela est exposé dans l'Aide, A propos de.

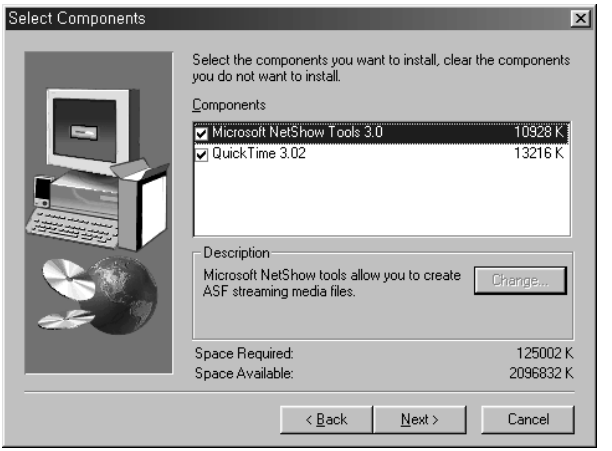
2. When the program starts to be installed, welcoming message and software usage agreement will appear. Continue to input necessary information and input serial No that is indicated as VideoStudio on the surface of installation CD. Click **Next** button.


User Information
Please enter your name, the name of the company for whom you work and the product serial number.
Name:
Company:
Serial:
< Back
Next >
Cancel

3. Click <Next>. If you want to install to a different folder, click <Browse>.

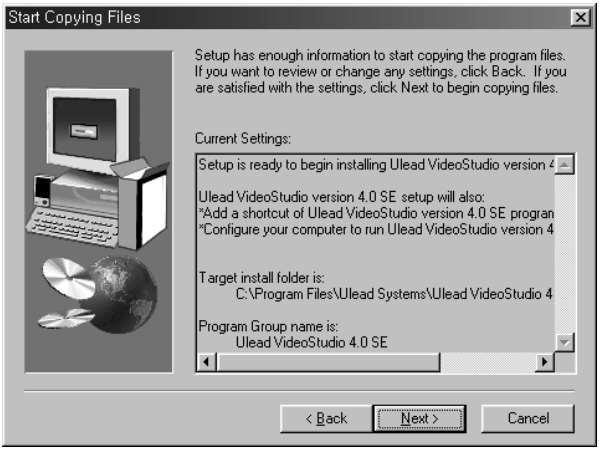

Choose Destination Location
Setup will install Ulead VideoStudio version 4.0 SE in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install Ulead VideoStudio version 4.0 SE by clicking Cancel to exit Setup.
Destination Folder
C:\...\Ulead VideoStudio 4.0 SE
Browse...
< Back
Next >
Cancel

4. As the following additional files are used for VideoStudio, you can select them to install than click <Next>.


Select Components
Select the components you want to install, clear the components you do not want to install.
Components
Microsoft NetShow Tools 3.0 10928 K
QuickTime 3.02 13216 K
Description
Microsoft NetShow tools allow you to create ASF streaming media files.
Change...
Space Required: 125002 K
Space Available: 2096832 K
< Back
Next >
Cancel

5. Click <Next>.

6. Click <Next>.


Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Setup is ready to begin installing Ulead VideoStudio version 4
Ulead VideoStudio version 4.0 SE setup will also:
*Add a shortcut of Ulead VideoStudio version 4.0 SE program
*Configure your computer to run Ulead VideoStudio version 4
Target install folder is:
C:\Program Files\Ulead Systems\Ulead VideoStudio 4
Program Group name is:
Ulead VideoStudio 4.0 SE
< Back
Next >
Cancel

7. When all the procedures for installation are completed, the computer starts to copy all necessary programs to hard disk drive. When copying is completed, the installation is completed. Windows starts rebooting.

Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

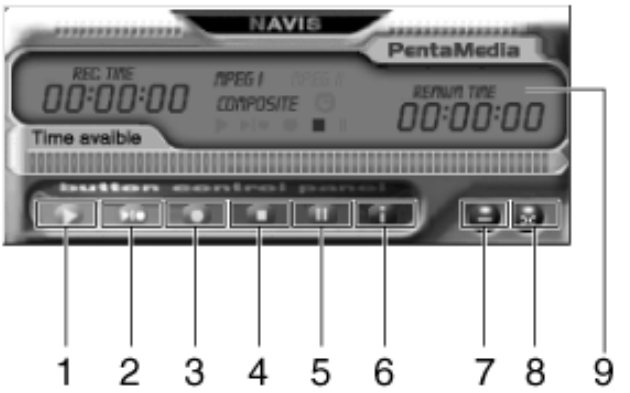
Chapter 3

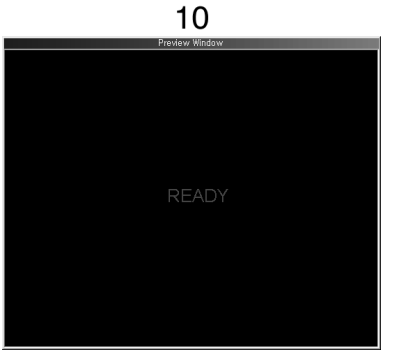
Program Start

Start the program following the below procedure.

Start > Program > NAVIS2

Main Screen Program





1. Name

1. Play
2. Play / Record
3. Record
4. Stop
5. Pause
6. Setup
7. Minimize
8. Power off
9. Status Windows
10. Preview Window

NAVIS main screen

The Panel Buttons

1. Play

Clicking this button displays video screen. But it doesn't record it as a file. In case playing device is not installed, this button turns to gray and can't be selected.

2. Play / Record

Clicking this button simultaneously shows recording and video. If there isn't playing device, this button remains gray and can't be selected. As it records input video, stores it as a file and shows it on the screen, about 1~2 second delay is made after actual input.

3. Record

Clicking this button starts encoding to make a file. You can make a file name at output configuration part in setup configuration menu before recording process starts. But during recording, temporary file is used. So the file name is ignored.

4. Stop

This button stops all processing.

5. Pause

Displaying video pauses when this button is clicked. But even the display is paused, the program continues to store. Status window also shows remaining time that is temporarily stored in buffer. It doesn 뭡 stop the recording process. To see the video again, click this button one more time.

6. Setup

This button displays the list of available options used to configure the system. The options list is detailed later in this document.

7. Minimize

This button minimizes the program screen.

8. Power off

This button completes NAVIS program.

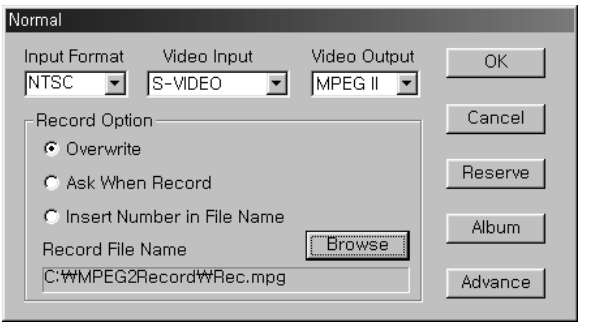
Recording

1. Checking environment.

Check if S/W decoder program, which is provided along with NAVIS program, is installed. Connect audio and video systems, which is to be recorded and stored, to the respective terminals of the board.

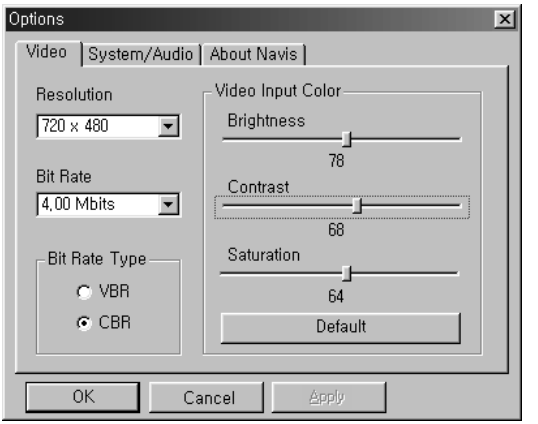
2. Confirming Setup

1. Start NAVIS program and click Setup.
2. Select video input and output. Select Composite if the video that is to be recorded is connected to **VIDEO-IN**. Select S-Video if the video is connected to **S-VIDEO-IN**.



3. At record option you can check storing location and file name. (You can change it.)

4. Click **Advance** botton and check the compressing rate of video and audio. (You can use basic value.)



5. Click **OK** button to store the current setup.

3. Recording starts.

1. After setup is finished, it starts to record.
2. Click **Record** button or Play/Record button to start recording.
3. Click **Record** button and it starts to record audio and video that is being input to the board to hard disk. You can see the current recording time and recording possible time.
4. Click **Play/Record** button to start recording. It shows recorded contents on the screen with 1~2 seconds interval. What is shown on the screen is not real-time contents. It is the contents that are stored in hard disk. The decoder that is installed in a system decodes the stored video. So the displaying speed can vary according to the system specification. But normal speed is 30 Frame/s.
5. You can use **Pause** button while the **Play/Record** button is in on state.

6. Click **Stop** button to stop the recording.

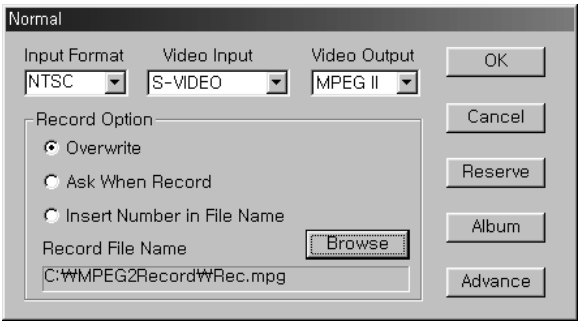
4. Play

1. If S/W decoder is normally installed, you can see the recorded file with Windows Media Player or Active Movie Player that Windows basically provides. You can use WinDVD program to play the file.
2. Check the recorded file at the recorded location. Execute it and then it starts to be played.

Users' Option

Before starting playing or recording you can change some configurations. If some configurations are changed, NAVIS program stores the newly configured value and uses the stored value basically in the next operation of the program.

1. Normal Option



1. **Input Format**
   The input video formats supported are NTSC and PAL.
   The default is NTSC.

2. **Video Input**

   This option configures video connection at video input connector. It supports composite and S-Video. Composite is the default. S-Video has better resolution than Composite. If input video device supports S-Video, we recommend you choose this option.

3. **Video Output**

   Now MPEG2 and MPEG1 Streams are supported. If you compress the file with MPEG2, video-input, resolution and decoder change to automatic with MPEG2.

4. **Record Option**

   It can define the file name for recording function. If you select **Overwrite** function, you can use default file name. And if you select **Ask When Record** function, when recording is started, you can select the appropriate file name.

5. **Reserve**

   This button makes reserved recording possible. If the user inputs starting and ending time, NAVIS program starts and ends the recording automatically according to the reserved time.

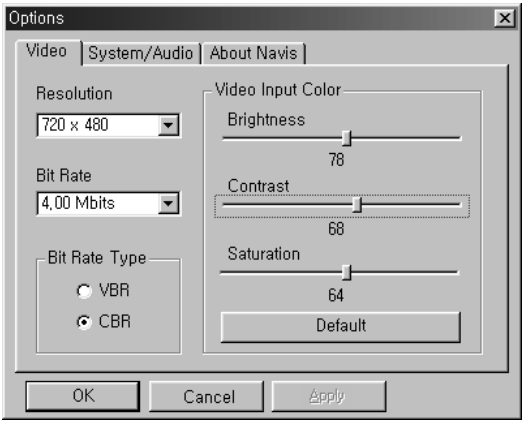
6. **Album**

   This album function is to manage recorded file list. This function is possible not only file play function but also delete function of unnecessary lists. But this delete function is only delete of recording list. If you want to delete unnecessary file, please delete the file in that folder.

7. **Advance**

   This button is advanced setup function..

2. Option : Video



1. **Video Bit rate**

   The user can define the compressing rate between 1-8 Mbit/sec. The basic compressing rate of MPEG1 is 1.15Mbit. In the case of MPEG2, we recommend you use 4Mbit. The higher the compressing rate is, the better it displays. But it makes the file that is to be stored in hard disk too large. When the compressing rate is too low, it shows low resolution

2. **Resolution**

   MPEG-1 : NTSC (352 x 240), PAL (352 x 288)

   MPEG-2 : NTSC (720 x 480, 640 x 480, 480 x 480, 352 x 480), PAL(720 x 576, 640 x 576, 480 x 576, 352 x 576)

   The default output solution is 720 x 480

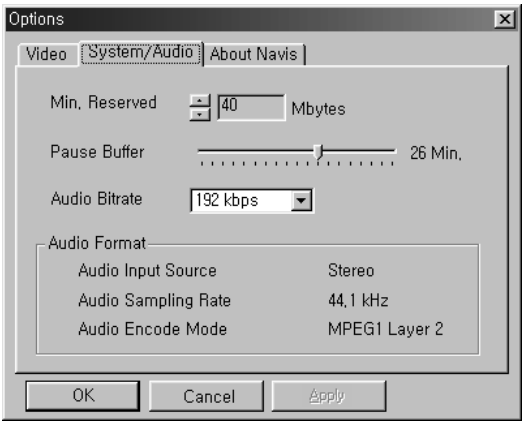
3. **Bit Rate Type**

   There are CBR (Fixed Bit Rate) and VBR (Variable Bit Rate). CBR compresses the video with defined compressing rate. VBR compresses the video differently according to the video input.

4. **Video Input Color**

It controls the color of input video. You can control the Brightness, Contrast and Saturation of the video. If you click **Default** button, the value is converted initial status.

3. Option : System / Audio



1. **Min. Reserved**

It defines minimum hard drive space that is to reserved to prevent the all space of hard disk from being consumed while recording. Minimum space is 20 MB.

2. **Pause Buffer**

Pause buffer continues to store the video even Pause button is executed for temporary seeing. In this case the size of buffer is indicated in the unit of minutes. You can define it from minimum 4 minutes to maximum 40 minutes.

3. **Audio Bitrate**

192, 224, 384 Kbps. The default is 192 Kbps.

4. Options : About Navis

It shows the product name, version and date.